IMAMA

International Masters Manual

MATHEMATICS & COMPUTER SCIENCE

2025/26

Preface

Welcome to the Student Handbook for the International Masters of Mathematics and Computer Science at KIT! We, the student representative body ("Fachschaft") for Mathematics and Computer Science, give you information about the Master programmes and other information relevent for your studies to help you gain orientation at the beginning.

For more general information about studying at KIT and living in Karlsruhe, have a look at the "visiting student handbook" offered by INTL, the International Students Office:
www.intl.kit.edu/download/OVERSEAS_student_handbook.pdf

In case there are questions that this handbook does not answer, you can contact us at any time (for contact details see page 6).

We wish you a great start into the new semester and a wonderful time in Karlsruhe!

Yours,

Fachschaft Mathematics/Computer Science
Karlsruhe Institute of Technology

Impressum

Erstsemesterinformation der Fachschaft Mathematik/Informatik.
Sämtliche Angaben sind gewissenhaft recherchiert, aber natürlich ohne Gewähr.

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Contents

Welcome to the Fachschaft

The "Fachschaft Mathematik/Informatik (FSMI)" gives you a warm welcome!

Who are we?

The **Fachschaft (FS)** is a representative student body of – in our case – all students of the Mathematics and the Informatics (computer science) departments. We advise students concerning their studies, provide old exams (both written and oral) and represent student interest in committees. Additionally, we arrange fun events and are always there for you if you want to talk to someone or just have a cup of coffee or tea.

We have two **rooms**, the Fachschaft Mathematik (FSM) in the mathematics building and the Fachschaft Informatik (FSI) in the computer science building.

1. Need help? You're welcome to visit or contact us with any questions – whether they're about your studies, exams, or other concerns. We'll do our best to help you. And if we can't answer your questions ourselves, we'll likely know who can. We have regular office hours, but feel free to stop by anytime. Most likely somebody will be there anyway. You can visit both the Fachschaft Mathematik and Fachschaft Informatik; contact details are given at the end.

2. Who is in the Fachschaft? Who are the members of the Fachschaft – the so-called **"Fachschaftler" (FSler, students in the Fachschaft)**? We are a mixed group of mathematics and computer science students who like being involved in university topics and help with student issues. We all contribute in our own way to the Fachschaft. Meanwhile, we're all still studying, so we help you alongside our own studies. All students work on a voluntary basis, and we do not get paid.

3. Want to join? Sure you can, every mathematics or informatics student is welcome to join us. The Fachschaft is a great way to meet new people and a fun activity alongside studying. Generally, you decide how and how much you want to contribute. Some Fachschaftlers invest quite a lot of time, but of course you don't have to embark fully right away. Most newcomers begin with participating in a weekly consultation hour. Coming back to the question "Who are we?" there is an easy answer:

Fachschaft – that is you, too.

Every student studying mathematics or computer science is part of the Fachschaft and therefore we are happy to welcome you as a member from now on!

`www.fsmi.org`

We have **several mailing lists** for news ("news@"), events, jobs and internships ("jobs-praktika@") and so on. We send a lot of information via those lists. You can register at:

`www.fsmi.org/en/offers/mailing-lists/`

We have a mailing list especially for **International Students**. Via "international-events@fsmi.org" you can receive information concerning events especially for you! If you have problems signing up for the mailing lists on the website mentioned above, please don't hesitate to contact us. For any advice or problems, you may contact "mathe-info@fsmi.org".

You can also follow us on Instagram (**`instagram.com/fsmi.kit/`**), Twitter (**`twitter.com/fsmikit`**) and Mastodon (**`mastodon.social/@fsmikit`**).

What do we do?

We offer regular **consultation hours** in most time slots during the lecture period. We sell **old exams and protocols** of oral exams and consult students. Protocols of oral exams are notes from students who have previously taken an oral exam and wrote down questions and topics the examiner asked about. We maintain a constantly growing database of those protocols and old exams for almost every subject. Feel free to visit us around exam time to get the best preparation for your exams.

An overview of the consultation hours can be found on our homepage, although there are people in both our rooms most of the time. During consultation hours, fellow students of the Fachschaft are sitting in the Fachschaft rooms, ready to assist you with any kind of questions or to just chat and drink a coffee with you.

To encourage bonding with us and other students, we offer two **breakfasts** in the Fachschaft Informatik and Fachschaft Mathematik on Tuesday and Thursday respectively. Stop by – grab a bread roll and a cup of coffee for free – it's great for getting to know people!

Every Wednesday we have the **FSR ("Fachschaftsrat")**, which is the decision-making organ of the Fachschaft and a meeting to which everyone – including guests – is invited. Students report from their committees, we discuss current problems, plan events and discuss other matters concerning the university policy, study programmes, the Fachschaft and other things that come up.

If you want to know what is currently happening in the faculty and the Fachschaft, step by! Protocols of our meetings can be found on our homepage (Über uns/Fachschaftsrat). An invitation mail with all topics for the upcoming FSR is sent via the mailing list "fsr-einladung@fsmi.org" on Mondays. If you are interested in seeing what we are currently discussing, feel free to join the mailing list on our website as well.

Another Fachschaft meeting is the **plenary assembly ("Vollversammlung", VV)** that takes place once per semester. In the plenary assembly of the winter semester, the budget for the next year is resolved and a detailed report about the last semester is given. We also discuss rather fundamental topics, such as changing Fachschaft regulations. We will invite you via email and there'll be announcements on our notice boards.

We also send students to other **committees**, such as the FSK ("Fachschaftenkonferenz") – the conference for all representative student bodies (Fachschaften) where common decisions are made. Two big **external conferences** that we send Fachschaftler to are the KIF ("Konferenz aller Informatikfachschaften" – the conference of all informatics student bodies) and KoMa ("Konferenz aller Mathematikfachschaften" – conference of all mathematics student bodies).

For all **big and small events** organized by the Fachschaft, the faculty and the AStA, go to "General Information/Events".

What do we offer?

We offer **insight** into university work, the chance to change things, a great community, and the opportunity to gain valuable experiences and competences.

There are many **interesting projects** in the Fachschaft. You can start small projects (such as this booklet) or be sent to conferences (see above).

As part of the Fachschaft you can offer your opinions on events we arrange and matters we handle. Sitting in committees, you can even take part in matters of the faculty, such as discussing structural issues or hiring new professors.

We want all students to enjoy their studies, and offer you a **nice environment** for getting involved – and you are really most welcome to do so! So if you are interested or simply want to get to know us a little bit better, just come to one of our events or contact us via one of the ways listed below. We are looking forward to seeing you and give you a warm welcome to Karlsruhe!

Contact details

If you want to ask questions, have a problem, want to buy old exams or protocols or simply want to stop by, you can come to our rooms, email or call us:

Fachschaft Mathematik
building 20.30, room 0.002
mathe@fsmi.org
telephone: (0721) 608-42664

Fachschaft Informatik
building 50.34, room -124
info@fsmi.org
telephone: (0721) 608-43974

Homepage
www.fsmi.org

You can check our website ("Sprechstunden") to find out at which times we're present in our Fachschafts rooms for certain. However, even at times not listed on our website, there is still a good chance that someone is around, you can always give us a quick call to find out.

Our email addresses

For almost all questions you can send an email to:

mathe@fsmi.org
info@fsmi.org

For international students, we have the following email address for consultation:

international@fsmi.org

But feel free to also use our regular contact addresses.

General Information

u-Account and KIT-Card Once you register at the International Office, your university account (u-Account) and preliminary password will be delivered to you via mail. You can collect your KIT-Card (student card) at the ID office (Building 10.11, Room 214). For further questions about that, ask the International Students Office (IStO). You can use your u-Account to log in to the student portal (see "KIT Websites"), where you find all important documents and transcripts, and the ILIAS system where lecture materials are provided. Your u-Account is equipped with a wide range of other rights, such as VPN authorization (see "Wi-Fi"), printer access, etc. Printing can be done at the Scientific Computing Centre ("SCC").

With the KIT-Card you can pay in canteens, top up your printing credit at the SCC and get into the main library and a few other buildings in the middle of the night.

Note: You should always take your KIT-Card and an official ID card with you to exams!

Wi-Fi and VPN With your u-Account, you can connect to Wi-Fi. The password is the same as your regular password, simply append "@kit.edu" to your username. There are multipe networks available on the campus. "KIT" is internal to the university, "eduroam" can also be used by exchange students using their home university login. There are also the "KA-WLAN" and "KA-sWLAN" networks for choice that are public city wifis.

The SCC offers a VPN service to connect with the KIT intranet from anywhere. This is necessary to access certain resources, such as textbooks that are available via the KIT intranet or the printing service (see "SCC/Print&Plot").

Wi-Fi:
www.scc.kit.edu/en/services/6298.php

VPN:
www.scc.kit.edu/en/services/vpn.php

SCC (Scientific Computing Centre) The SCC is the centre of computing at KIT that offers many practical services for students such as printing, computer pools, a software shop, email and a VPN connection to the KIT intranet.

www.scc.kit.edu

Print & Plot is the SCC's printing service where you can print for little money. Your u-Account serves as a printing account. You can by credit with your KIT-Card at the printing service desk in the basement of the SCC. To print, you can use an SCC pool computer, your own computer, or you can use the web-based Print&Plot service. In either case, you have to be connected to the KIT network, either directly or via VPN. You can collect your documents in the basement of SCC.

www.scc.kit.edu/dienste/printundplot.php

Computers can be found in the pool rooms of the SCC and are free to use. Your login data is the same as for the KIT intranet (see "u-Account"). You can use them for studying; when the library is too full, usually there is space. When you are logged in to the pool computers, you can print directly.

Another pool room can be found in the basement of the computer science building. However, this pool room is not offered by the ATIS (see "ATIS") and not the SCC.

The **software shop** of the SCC offers scientific software such as Mathematica to students. Mostly it is for free, but sometimes you have to pay for a software. In this case however, usually it is offered with great discount.

www.scc.kit.edu/en/services/softwareshop.php

Libraries There are several libraries: First, the main library next to the cafeteria that is open 24/7 and mostly overcrowded during exam periods. Second, there are smaller specialized libraries of individual faculties. You can check for free space with the seatfinder. The main library offers a printing service as well.

Main library:
www.bibliothek.kit.edu

Seatfinder:
www.bibliothek.kit.edu/english/seatfinder-list.php

Computer Science library:
www.informatik.kit.edu/english/2236.php

Mathematics library:
www.math.kit.edu/bibliothek/en

To activate your **library account**, go to **www.bibliothek.kit.edu** and register by signing in with your u-Account. You can use your KIT-Card to borrow books and to get into the main library after 7 pm on weekdays as well as on weekends and holidays.

At the vending machines in the library, you can pay with your KIT-Card; late fines for books are paid at the respective terminals.

Lockers can be found in the basement of the main library. You can rent them with your KIT-Card free of charge for a maximum of 24 hours (after that fees will be charged). For more information, see

www.bibliothek.kit.edu/english/lockers.php

Students Office At the students office ("Studierendenbüro"), you can ask anything concerning academic affairs in general. For more subject-specific information, please contact your study counsellor for mathematics or the informatics study program service ("ISS") for computer science. The students office is responsible for (re-)enrolment, change of study programme, second degrees, semesters on leave ("Urlaubssemester"), study certificates, exam application and admission, administration of credits and exams, transcripts, reports and a lot more. They have a welcome desk as well as service times with counsellors for the individual study programmes.

www.sle.kit.edu/english/index.php

International Students Office (IStO) The International Students Office advises students who want to go abroad as well as foreign students who study at the KIT. You can also get information about scholarships and internships abroad.

IStO:
www.intl.kit.edu/ia/isto.php

KIT Websites The three most important websites for you are:

- The campus portal ("CAS Campus system"), where you find all certificates, transcripts, etc. Here you can also register for exams.
- At ILIAS you can find material to the lectures and ask questions in forums.
- The websites of the lectures themselves often contain a lot of materials such as exercise sheets and solutions, slides, lecture notes and important information. These are often linked from the respective ILIAS courses.

Campus Portal:
campus.studium.kit.edu

ILIAS:
ilias.studium.kit.edu

KVV Ticket As a student of KIT you can take public transportation for free during weekdays from 6 pm to 6 am and on weekends and holidays all day in the whole KVV ("Karlsruher Verkehrsverbund") region. You can download the certificate at the student portal (see "KIT Websites"). The KVV also offers a discounted "Deutschlandticket" for students aged under 27 (**kvv.de/fahrkarten/fahrkarten-preise/schueler-studentinnen/d-ticket-jugendbw.html**). It is valid throughout Germany in local public transport (S-Bahn, RE, RB, tran, IRE, busses).

Events There are a lot of events by the KIT, the faculty and the Fachschaft that are arranged regularly. The most important ones are the following:

A rather important first task is to have a great **O-Phase** (introduction days)! As you know in winter semester, this includes a whole week of great activities whereas the summer O-Phase for master students is a little shorter. The introduction days are a good way to get into university and meet fellow students and usually takes place the week before semester starts. A great party during the winter O-Phase is the **O-Phest**, for which we usually pair up with other Fachschaften.

o-phase.com

Around June each year, we have the **"Eulenfest"** ("Eule" = owl, see our logo) – the Fachschaft party highlight each summer semester. It is organised by first-year students, Fachschaftlers and many more, and you can get involved too!

At the beginning of each semester, there is the **SAT ("Semesterauftakttreffen", semester kick-off meeting)** for getting to know the Fachschaft a little better and presenting the plans for the next semester. And if you want to, you can get a small task in the Fachschaft to do over the semester.

The **Unifest (university party)** is the largest student organised festival in the region. It takes place almost every year in summer on the campus at KIT. The Unifest is organised by the AStA ("AStA" s. below) Festival Committee – for students by students. In addition to numerous bands and DJs playing on various stages and floors, a variety of attractions such as slacklining, juggling, theatre, podium discussions and more will be offered.

unifest-karlsruhe.de

Mensa The Mensa (canteen) is next to the main library and includes the cafeteria (you can pay with your KIT-Card), the BAföG office, the student services ("Studierendenwerk") and a place where you can buy lecture notes ("Skriptenverkauf"). The cafeteria serves food weekdays from 11 am to 2 pm (it is usually crowded around 1 pm) and supper from Monday to Friday between 4 pm and 7:30 pm during lecture period.

www.sw-ka.de/en/hochschulgastronomie

AKK Café AKK ("Arbeitskreis Kultur und Kommunikation") is a cultural centre run by a student group. It includes the AKK Café at the old stadium ("Altes Stadion") in the middle of the campus near the Mensa, where you can buy good beer, coffee, tea and cold drinks for a rather low price. They also arrange "Schlonze"; relaxed theme nights with music, small tournaments, poetry slams, concerts and more. They even have a workshop and a photo lab, and regularly offer free dance classes.

www.akk.org

Career Service The Career Service at KIT aims to be a link between students and economy. As an example, it offers help concerning the search for internships or a job. The Career Service also arranges the career fair "KIT-Karrieremesse" (**karrieremesse.kit.edu**).

www.irm.kit.edu/english/careerservice.php

AStA The AStA ("Allgemeiner Studierendenausschuss") is the independent student committee and operates as the executive of the whole student body. Its members are elected by the student parliament; they also represent the students politically. The AStA organises the Unifest (see "Events") and keeps in touch with other AStAs. Furthermore, they offer services such as van rental and a print shop and sell international student cards. The AStA resides in a container opposite the Mensa.

www.asta-kit.de

ATIS ATIS ("Abteilung für Technische Infrastruktur") is the department for technical infrastructure of the computer science faculty and offers students a computer pool with about 100 work places similar to those in the SCC. You will find it in the basement of the computer science building. Before you can use the ATIS services, you have to register for an account on their website.

atis.informatik.kit.edu

Z10 The Z10 is a self-organised student centre that owns a café and pub (Zähringerstraße 10). You can have a drink for very little money, rent rooms or take part in cultural events.

z10.info

Psychotherapeutical Counselling Centre (PBS) PBS is the free psychotherapeutical counselling centre for students by the student services ("Studierendenwerk"):

www.sw-ka.de/en/beratung/psychologisch

You can arrange an appointment via telephone or personally, contact details are on their website. PBS also offers counselling for groups. In addition, you can borrow books from their book list:

www.sw-ka.de/en/beratung/psychologisch/weitere-angebote/buchtipps

Pregnancy and Studying Are you pregnant or nursing? Then there are certain protections and benefits in place which allow you to prolong your studies for a certain time or have exams and other test performances rearranged. Please ask your student body for advice.

Pregnancy and Studying:
www.sle.kit.edu/english/imstudium/mutterschutz.php

Familienportal:
www.familienportal.kit.edu/english/index.php

Disability and Studying If you have chronic diseases or disabilities, you might be eligible for assistance (e.g. for blind people) and modifications of how exams are conducted (such as a "Nachteilsausgleich").

Disability and Studying:
www.studiumundbehinderung.kit.edu/english/index.php

Nachteilsausgleich:
www.studiumundbehinderung.kit.edu/english/465.php

Study Information

These are some general information about your studies.

Since you will probably encounter some German terms that are difficult to translate into English, we will explain them to you here.

Also, we will give you an understanding of how lectures, "Übungen" and tutorials work together, including exams, "Scheine" and seminars.

Lectures As a master student, you are probably familiar with the concept of lectures. A professor stands in front the class and presents topics. These events are hardly interactive, although you are always welcome to ask questions!

Übungen "Übung" translates to exercise. "Übungen" are not mandatory, but are offered additionally. Here, exercises to the respective lecture are presented by a "trainer" ("Übungsleiter": staff in the team of the professor and sometimes the person who corrects your exercise sheets, if there are no tutorials). The difference to lectures is that an "Übung" is more interactive, so that you can ask even more questions. Be aware that it is possible for things from the "Übungen" to appear in exams!

(Please note: in the official prospectus, 'Übungen' for English lectures at the mathematics faculty are called 'Tutorial for …', which we call 'Übungen' in this booklet. This is not to be confused with actual 'Tutorien', which we call 'tutorials'. For computer science, the prospectus follows the terms used in this booklet.)

Tutorial Tutorials are held in smaller groups, usually by senior students called tutors. They are the perfect place to ask everything that is unclear to you. In tutorials, most of the time is spent going through exercise sheets and a big focus is laid on helping students and making sure they understand the contents. Usually, the tutors correct your exercise sheets. Some lectures offer tutorials, some offer "Übungen", some offer both and some offer none.

Exercise Sheets (Übungsblätter) For most courses the exercise sheets are offered voluntarily. Except for a few exceptions, only the base lectures have mandatory "Übungsscheine". These exercise sheets are usually way more difficult than the exercises in the exam. You can do them and hand them to your tutor or trainer ("Übungsleiter") for correction. Often people don't, so no worries about giving your tutor a little extra work.

Exams (Klausuren) There are oral and written exams. For written exams you have to register, sometimes up to a month in advance, and they take one to two hours. For oral exams, you go to your lecturer and agree on a date together. The times can vary quite a bit, depending on when the lecturer is free. Sometimes you can also examine two lectures in one oral exam. Oral exams take 20 to 30 minutes.

Written exams are often offered every semester, usually with a main exam and a retake in the next semester. You do not have to take part in the main exam directly, but can go for the retake exam instead. Some exams require a certificate (see "Scheine") for participation. More details are given on the course websites.

Retake Exam (Wiederholungsprüfung) Having failed a written exam, you are allowed to take it again once. The grade of the retake exam will then be entered into your transcript. If you fail the retake too, then there is an oral exam, giving you at most a "pass" (4.0). If you fail that one too, then you lose your right to examination.

You can request a hardship case ("Härtefallantrag", see below), which sometimes gets granted. If granted, you get another try for your exam including a third written exam and a following second oral exam. If you fail both or if the hardship case does not get granted, you generally do not have any further chances. In any case, come to the Fachschaft and let us give you advice.

Seminar A seminar is a series of presentations that are held by students and sometimes include a written documentation. At a preliminary meeting before the semester (often at the end of the previous semester) every participant gets a topic that they have to work on and present at a given date. There are "Proseminars" (easier seminars) too, they are however for bachelor students only.

Seminars are offered irregularly, and their topics differ from semester to semester. You can check on the offer in the prospectus ("Vorlesungsverzeichnis"), on postings in the faculty buildings and on the faculties website. In Mathematics, sometimes seminars are graded, in computer science they are mostly graded. In contrast to lectures, there is compulsory attendance and the number of participants is limited. If you are interested even though the course is already full do go to the first meeting, often places become available afterwards. Registration differs (email, entering your name on a list, registration on the faculty's homepage, attendance of preliminary meeting). It is important, that you apply before the start of the semester! Often, application happens at the end of the previous semester, which is why it is important to check the information on the respective postings and homepages.

Work Internship (Berufspraktikum) In the master of mathematics in technology ("Technomathematik") you have to complete a work placement ("Berufspraktikum"), an internship in a company. The company as well as a supervisor from university have to be found by yourself. The internship itself has to take at least eight weeks.

Modules A module contains several classes, most often lectures, "Übungen" or internships. Some are mandatory, others voluntary. All modules are listed in the module handbook ("Modulhandbuch") including a short description, workload estimation (credits), educational objectives and type of success monitoring (e.g. exam).

"Schlüsselqualifikationen" In most programmes, you have to do a few credits of key qualifications ("Schlüsselqualifikationsleistungen", SQ): You can gain them through language courses at the language centre ("Sprachzentrum", SPZ), seminars at the FORUM and workshops at the house of competence (HoC). Joining an orchestra

also counts as a key qualification. All of these courses usually give 2, sometimes 3 or 4 credit points. After successful participation, you can apply the credit points in the Campus System. Application is in the week before the semester via the respective homepages.

Maximal Study Duration The maximal duration of the master programme is 7 semesters. If you still need longer, you can apply for a hardship case. If this request is not approved, you will be ex-matriculated. In any case, come to the Fachschaft early enough so that we can give you advice!

ECTS Points (Leistungspunkte) ECTS points (translated to "European Credit Transfer and Accumulation System") give you a rough estimate of how much work should be put into the module or lecture in general. One credit point stands for 30 hours of work (6 credits amount to 180 hours); included is the attendance of lectures, exercise sessions ("Übung"), tutorials, working on exercise sheets, pre- and post-preparation of lectures and learning for the exam.

ECTS points also serve as a mean of comparison for the recognition of courses that you attend at other universities or abroad. For a stay abroad, it is still important to fill out a learning agreement which lists and approves all courses you intend to visit.

(Note: In german, ECTS are often also referred as "Leistungspunkte" and abbreviated as "LP".)

Re-Enrolment (Rückmeldung) Towards the end of each semester you have to re-enroll by transferring the current amount of 201.50 € to the KIT bank account – more details on that are given in the campus system (**`campus.studium.kit.edu`**, "Re-Registration"). The deadline is on February 15th and August 15th each year.

Non-EU students have to pay 1500 € additionally(!) to the 201.50 € per Semester. For further information, see:

Study costs:
`www.intl.kit.edu/istudies/3363.php`

Examination Right and Hardship Case Through your enrolment you gain the right to examination; by failing exams repeatedly you can lose it again (see "Exams" above). The right to examination only holds for those exams that are part of your studies (including supplementary subjects ("Ergänzungsfach") and other additional achievements, such as "Zusatzleistungen" for example).

If you have lost your examination right in mathematics, you are not allowed to study mathematics or related courses at any other German university anymore. If you request a hardship case, it is not necessarily granted. In any case, visit the Fachschaft, or go to your study counsellor in advance.

Study Plans In the following chapter, you will be given some information about your programme plan. As a master student, you do not have too many constraints on your course choice, not to speak of a real study plan.

Campus System The Campus system is a campus management system that covers all administrative processes and can be accessed by students via the student portal (**`campus.studium.kit.edu`**). You can obtain transcripts and certificates of all kind there, register for exams, perform your semi-annual re-enrolment and much more.

Going Abroad

There are several options to go abroad during your studies, including internships and theses. Most programmes require a preparation time of one year or more, so be quick if you plan to go abroad in your master.

Besides early application deadlines, there are requirements such as language skills and a certain grade point average. Thinking about what courses you want to take and whether they are credited by your faculty in advance is beneficial and can be done via a learning agreement. You should also think about financing, for which there is support by some programmes.

The International Students Office (IStO) can give you further information and advice about all options. They regularly offer information events to single programmes as well and are generally happy to help.

Erasmus+

The most common programme to spend a semester abroad is Erasmus. The KIT cooperates with a grand range of universities across Europe, you can choose from. The programme includes a scholarship (that is bound to a fixed amount of mandatory credits) and relieves you of the study fees of the university abroad. Erasmus also supports internships abroad. Through already existing cooperation, preparation is of little effort. Application deadline is usually around January for the next academic year, depending on your study programme. You apply directly at your faculty via the Erasmus coordinator.

Freemover

As a freemover you can go to the university of your choice, not being bound to the KIT Erasmus partner universities. Here you have to arrange everything yourself and mostly have to pay the study fees of the respective university abroad as well. It is a nice option if you aim for countries that do not have study fees.

Direct Cooperations and Overseas Programmes

Besides partner universities in Europe, KIT has bilateral co-operations with universities all over the world, called direct co-operations. It takes part in several exchange programmes, one of which is the "Baden-Württemberg-Programm", that also supports stays overseas. Application deadlines for these programmes are often 1.5 years in advance.

Master's Thesis

Writing your thesis abroad is a small exception, since you do not have to be enrolled at the other university and do not have to pay study fees. The only requirement is that you find supervisors at both universities.

Through the InterACT programme, computer science students are supported in writing their thesis at an international partner university.

Double Degree Programmes

The computer science faculty offers double degree programmes with a partner university in France. It includes spending one year at the KIT and the second year at the other university, giving you a German and a French degree in the end. You can apply at the beginning of your masters programme.

Internships

Going abroad for an internship can be arranged freely by yourself and is not necessarily bound to one of the exchange programmes above. You can apply for an Erasmus scholarship or go to a student association such as IAESTE or AIESEC.

Financing

Studying abroad, you are entitled to apply for "Auslands-BAföG". You are more likely to be elegible for "Auslands-BAföG" that regular "BAföG" as rates abroad are higher than in Germany. You can apply as a foreign student as well, in case you fulfil the requirements.

Other scholarship programmes are available, too. Further information is available at the International Students Office.

Contact persons

International Students Office (IStO)
building 50.20, room 106
www.intl.kit.edu/ostudies

Erasmus (faculty of Mathematics)
Dr. Daniel Weiß
Mathematics building (building 20.30), room 3.039
erasmus@math.kit.edu
telephone: (0721) 608-43197
www.math.kit.edu/lehre/page/erasmus/en

Erasmus (faculty of Computer Science)
Christine Glaubitz
Computer Science building (building 50.34), room 001.2
christine.glaubitz@kitedu
telephone: (0721) 608-44042
www.informatik.kit.edu/english/erasmus.php
www.informatik.kit.edu/english/exchange.php

InterACT Programme
Margit Rödder
margit.roedder@kit.edu
telephone: (0721) 608-48676
interact.anthropomatik.kit.edu

Erasmus Student Network (ESN Karlsruhe)
(Counselling, not only for Erasmus+)
esn-karlsruhe.de

The Mathematics Master Programme at KIT

There are three master's programmes: Master of Mathematics, Mathematics in Economics and Mathematics in Technology.

A master's programme involves 120 credits (ECTS), and is planned to be completed in 4 semesters ("Regelstudienzeit"); the maximal study duration is 8 semesters for Mathematics and 7 semesters for Mathematics in Economics or Mathematics in Technology.

The programme culminates in a masters' thesis that encompasses 30 ECTS and takes about 6 months. You can apply as soon as you have a total of 70 credits.

There are no mandatory modules, however, there are some rules that you should keep in mind when planning your schedule.

Master in Mathematics

Main Subject

From the four mathematical areas

- analysis and differential equations
- algebra / geometry
- numerical analysis / scientific computing
- stochastics / statistics

You can choose two main subjects ("Mathematische Methoden 1" and "Mathematische Methoden 2"). In one of your main subjects, you have to gain at least 24 credit points, in the other one, you have to gain at least 16 credit points. One of the two main subjects must be "algebra / geometry" or "analysis and differential equations". Neither of the main subjects can include a seminar. All introductory courses are offered in English every two years.

Additionally, you need to take 14–22 more credits in math courses ("Mathematische Vertiefung") including at most one ungraded seminar. Here, you can freely combine courses from all four mathematical fields.

Supplementary Subject

Furthermore, courses encompassing between 16 and 24 ECTS should be taken in the "supplementary subject" ("Ergänzungsfach"). This subject can either be one of the mathematical areas above that you have not chosen yet, or one of the following subjects offered by other faculties

- Computer Science
- Physics
- Economics
- Mechanical Engineering
- Electrical Engineering

Please consider that not all of these subjects provide programmes in English. Courses that are not offered by the mathematics faculty have to be approved individually by your study counsellor.

Your supplementary subject and the additional maths courses have to add up to 38 credit points.

Further requirements

Two mathematical seminars (each worth 3 ECTS) have to be completed as well as 6 credit points of key qualifications (SQ, s. "Study information"). Courses, seminars and key qualifications have to add up to a total of 90 credit points.

Sum: 120 ECTS = 54–62 (main subject) + 16–24 (supplementary subject) + 6 (2 seminars) + 6 (SQ) + 30 (masters' thesis).

Master of Mathematics in Technology

This programme can be started for the last time in the summer semester of 2026. It is still possible to start at a higher semester level after that, as long as the semester level is not lower than that of the year group that started in the summer semester of 2026. Exams can then still be taken until the end of winter semester 2030/31.

Mathematical subjects

In the Master of Mathematics in Technology, you'll need to obtain 43 credit points in mathematicsl modules. These are composed of 24 credit points in "Applied Mathematics" and 19 credit points in a "Mathematical in-depth subject". In "Applied Mathematics" the module "Finite Element Methods" must be taken and at least 8 credit points should be Analysis courses. The remaining modules can be chosen freely among all mathematical modules. In the "in-depth subject" one mathematical seminar must be included; the remaining 16 points are of free choice.

Technical Subject / Computer Science

You'll need to take at least 18 credit points in your technical subject and at least 8 credit points in Computer Science. The technical subject and Computer Science combined should encompass 35 credit points.

You can choose one of the following technical subjects:

- Constructional Engineering
- Chemistry
- Chemical and process engineering
- Electrical engineering/ Information technology
- Experimental physics
- Mechanical engineering
- Mechatronics and information technology
- Materials sciences

All courses in non-mathematical subjects have to be approved individually by your study counsellor.

Technomathematical Seminar

In addition to the mathematical seminar (contained in the in-depth subject) an additional seminar is required. It can be mathematical, belong to the technological subject or the computer science.

Internship

During the masters' programme, an internship of at least 8 weeks is required, including a report of about 10 to 20 pages. The internship accounts for 10 credit points and should be accomplished in an area that "gives the student insight in the connections between mathematics and technology". You have to find your internship and a supervisor on your own. Since most companies need some time to hand out internships, we recommend looking for one as early as possible. The respective coordinator is Mr. Neher.

Key Qualifications

You need to obtain key qualifications (SQ) worth 2 credit points (see "Study information").

Sum: 120 ECTS = 24 (main subject) + 18–27 (secondary subject) + 8–17 (computer science) + 19 (elective subject) + 10 (internship) + 2 (SQ) + 30 (masters' thesis).

Master of Mathematics in Economics

Mathematical Subject

Your mathematical courses have to sum up 36 credit points in total with 8 ECTS in Stochastics and 8 in Analysis or Applied and Numerical Mathematics. The remaining 20 are of free choice.

Economical subjects

18 credit points each are required from both

- Finance / Risk Management / Managerial Economics and
- Operations Management / Data Analysis / Computer Science

Modules out of both areas have to be approved by your study counsellor.

Seminars

One seminar in mathematics and one in economics are required (each providing 3 ECTS).

Elective Courses

You can fill 12 credits with courses from both the mathematical and economical area, including at most one economical seminar. (Of course you can do more seminars, however they are not going to be added to your credits.)

Sum: 120 ECTS = 36 (maths) + 36 (economics) + 12 (elective courses) + 6 (2 seminars) + 30 (master's thesis)

English Courses

There is a designated section of "courses of the international programme" in the prospectus.

For courses in English at other faculties you can also look in the prospectus or ask the Fachschaften for help. There are a few other international masters programmes at KIT that might have an list of their English courses.

Study counsellors

Mathematics

Prof. Tobias Lamm
building 20.30, room 2.040
tobias.lamm@kit.edu
telephone: (0721) 608-41696

Mathematics in Technology

Prof. Willy Dörfler
building 20.30, room 3.013
willy.doerfler@kit.edu
telephone: (0721) 608-48850

Mathematics in Economics

Dr. Bernhard Klar
building 20.30, room 2.052
bernhard.klar@kit.edu
telephone: (0721) 608-42047

International Master

Prof. Xian Liao
building 20.30, room 3.027
xian.liao@kit.edu
telephone: (0721) 608-42616

All of these people can help you with questions about the module handbook, requests such as hardship cases, credit recognition (Erasmus), etc.

Counsellor for Internships

Dr. Markus Neher
building 20.30, room 3.058
markus.neher@kit.edu
telephone: (0721) 608-42682

Students' Centre of Mathematics (StuZeMa)

The students' centre is responsible to enter students records into the Campus System. Here you can hand in all requests forms regarding exam registration found at **www.math.kit.edu/lehre/page/formulare/de**.

Francesco Amoroso
Leistungskoordinator
building 20.30, room 0.003
francesco.amoroso@kit.edu
telephone: (0721) 608-45301
www.math.kit.edu/lehre/page/stuzema/en

For further information, see

www.math.kit.edu/lehre/page/studinternational

The Computer Science Master Programme at KIT

Aim of the study program

The study program is designed to provide you with the following skills and competencies:

- *Computer Science Competences (Core Competences)*: You are able to independently apply and enhance your scientific knowledge and methods in computer science. You can assess the relevance and consequences of different computer science methods in solving complex scientific and social problems. You have the necessary skills needed to successfully solve applied as well as scientifically complex problems in the field of computer science and related interdisciplinary fields.
- *Communication Skills*: You can present and explain computer science ideas clearly and convincingly, both orally and in writing. You are able to communicate effectively to and with technical and non-technical audiences.
- *Team-work and Project Work*: You are able to work in multidisciplinary teams and you have project planning and organizing skills.
- *Commitment to Society*: You recognize the impact of computer science in a societal context. You have the understanding of professional and ethical responsibilities and are able to act accordingly.
- *Personal and Professional Development*: You are able to adapt to the newest technologies and use your knowledge for further development.

The Computer Science Master is planned to be completed in four semesters ("Regelstudienzeit") and consists of 120 credit points (ECTS). You have to complete your studies in your seventh semester ("Maximalstudiendauer"). If you can foresee that the maximum duration of study will not be enough for you, you should inform yourself in the Fachschaft in advance, so we can advise you on possible solutions. Another point of contact is the Informatics Study Program Service (ISS).

You can find an overview of all modules and their descriptions in the module handbook (**`www.informatik.kit.edu/english/formulare.php`**). The module handbook also contains more detailed explanations of the rules regarding the composition of your studies, which are outlined here on the following pages.

Subjects in the Master programme

Area of Specialization

You have to choose two areas of specialization ("Vertiefungsfächer") from the following list:

- Algorithm Engineering
- Cryptography and Security
- Data Science
- Design of Embedded Systems and Computer Architectures
- Human-centred Machine Intelligence
- Robotics and Automation
- Software Engineering and Compiler Construction
- Telematics
- Theoretical Foundations

For each area of specialization, there is a list of module that can be taken in the module handbook. You need at least 15 credit points in each of the specialization areas, a minimum of 10 credits points must be in form of lectures, that are no advanced mandatory modules ("Stammmodule"). There is one exception: in Telematics only 8 credit points of lectures are required. The remaining credit points can be chosen freely.

Elective Studies

Your studies may include up to 49 credit points of elective studies ("Wahlbereich"), where you can freely choose modules. Depending on how many credit points you do in other areas, the number may be lower.

Minor Studies

In your Minor Studies ("Ergänzungsfach"), you can include lectures from another subject area to the extent of 9–18 ECTS. The following subjects are currently proposed:

- Electrical Engineering
- Mathematics
- Economics
- Law

It is also possible to have your own lecture combinations (including from other disciplines) approved as a special minor studies subject. This requires an application to the examination board. It is best to seek advice beforehand.

Modules

There is only a small area of mandatory modules in the Master's degree programme. The remaining modules you can put together as you wish. Due to this freedom of choice, the regulations can sometimes seem very complicated. If you have any questions, don't hesitate to contact the Fachschaft and seek for advice!

Stammodule

In your studies, you have to take four "Stammodule" (advanced mandatory modules). "Stammodule" are courses in which important contents of an area of computer science are taught. They are therefore aimed at Bachelor students from the second year onward and Master students. There are many courses building on the "Stammodule", especially in the Master's degree. It is recommended to take the "Stammodul" examinations in the first year of study. Each "Stammodul" is offered annually either in the summer

or winter semester. There are currently the following "Stammodule" to choose from in the winter semester:

- Algorithms 2
- Computer Graphics
- Formal Systems
- IT Security
- Introduction to Robotics / Robotics I
- Telematics

And in the summer semester:

- Advanced Artificial Intelligence
- Computer Architecture
- Human Computer Interaction
- Software Engineering II

Each "Stammodul" is worth 6 ECTS.

Key Qualifications

You need to obtain key qualifications (SQ) worth 2–6 credit points (see "Study information").

Seminars and practical courses

At least 3 credit points must be earned through seminars, at least 6 credit points through practical courses and a total of 12–18 credit points through seminars and practical courses combined.

Stepping back from a module

If you have failed an exam once, it is possible to move the failed exam into the additional modules ("Zusatzleistungen"), which don't count towards your final grade. However, this can only be done at most two times. Further information can be found at **www.informatik.kit.edu/faq-wiki/doku.php?id=umbuchungen**.

Profiles

It is possible to obtain additional certificates together with your Master's degree by taking a specific set of modules known as a Master profile. The specialization of the Masters course through such a profile is completely optional and does not require any additional effort. At the end of your studies, you fill out a corresponding application form and the Informatics Study Program Service (ISS) arranges for the certificate to be issued.

A profile may contain special conditions regarding the choice of thesis topic, the specialization subjects to be chosen, the supplementary subject and the modules to be taken. The following profiles exist currently:

- Data-intensive computing
- Robotics
- Energy Informatics
- Artificial Intelligence
- Software Engineering
- Internet and Society
- Multi-Scale Computing Systems
- Visual Computing

Further information can be found at **www.informatik.kit.edu/english/9378.php**.

Master's Thesis

At the end of your studies, you will write your Master's thesis. It has a scope of 30 credit points and a time frame of six months from registration. Before you apply for a thesis, you must have earned 60 credit points, of which at least 15 credit points must be from a specialization subject, and submit the application for admission to the Master's thesis no later than three months after the last examination.

Retake exams

In addition to the general rules regarding exam retakes (s. study information), there is an additional rule in the Computer Science Master: The retake exam must be taken at most 4 semesters after the first failed attempt.

German Lectures

If you have sufficient German language skills, you can take up to 30 ECTS for modules held in German from the Informatik Master programme. You should consult the module handbook for the Informatik Master programme (**www.informatik.kit.edu/formulare.php** to look up which modules are available and how they can be integrated e.g., in your area of specialization.

Contact

Informatics Study Program Service

Computer Science building (building 50.34), room 001.2/001.3
erasmus@informatik.kit.edu
beratung-informatik@informatik.kit.edu
telephone: (0721) 608-44031
www.informatik.kit.edu/english/exchange.php

Collection of Links

In this link collection you'll find most links from the previous chapters as well as some additional ones that have not been mentioned. For further information have a look at the visiting student handbook (IStO):
www.intl.kit.edu/download/OVERSEAS_student_handbook.pdf

Fachschaft

- FSMI Homepage:
  www.fsmi.org/en
- FSMI Mailing lists:
  www.fsmi.org/en/offers/mailing-lists
- FSMI Consulting Hours:
  www.fsmi.org/en/contact-information/office-hours
- FSMI Instagram:
  instagram.com/fsmi.kit/
- O-Phase:
  o-phase.com/en
- FSMI Odie (Exams and Protocols):
  exams.fsmi.org

KIT

- KIT homepage:
  www.kit.edu/english/index.php
- Wi-Fi:
  www.scc.kit.edu/en/services/wlan.php
- Cafeteria:
  www.sw-ka.de/en/hochschulgastronomie
- Library:
  www.bibliothek.kit.edu/english/index.php
- Library Seatfinder:
  www.bibliothek.kit.edu/english/seatfinder-list.php
- Sports Courses:
  www.ifss.kit.edu/hochschulsport/english/index.php
- Language Courses:
  www.spz.kit.edu/253.php
- FORUM (Seminars):
  www.forum.kit.edu/english
- HoC (Seminars):
  hoc.kit.edu
- Student Groups:
  www.asta-kit.de/de/engagier-dich/hochschulgruppen
- Extracurricular Qualifications:
  www.sle.kit.edu/english/imstudium/4847.php
- Campus Plan:
  www.kit.edu/downloads/campus-sued.pdf
- Campus Plan (interactive):
  www.kit.edu/campusplan/index_en.php
- KIT NdW (Night of Sciences):
  www.ndw-ka.de
- KIT Career-Service:
  www.irm.kit.edu/english/careerservice.php
- KIT-Karrieremesse: (Career Fair):
  www.karrieremesse.kit.edu/english/index.php
- Studierendenwerk (Student Services):
  www.sw-ka.de/en

AStA

- AStA:
  www.asta-kit.de/en
- AStA Druckerei (Print Shop):
  www.asta-kit.de/de/angebote/druckerei
- AStA Car Rental:
  www.asta-kit.de/de/angebote/fahrzeuge
- AStA Legal Advice:
  www.asta-kit.de/de/angebote/beratung/anwaltsinformationsgespraech
- AStA German Courses:
  www.asta-kit.de/de/angebote/deutschkurs

SCC

- SCC (Computing Centre):
  www.scc.kit.edu/en/index.php
- SCC Print&Plot:
  www.scc.kit.edu/dienste/printundplot.php
- SCC Mailbox:
  www.scc.kit.edu/en/services/7397.php
- SCC Certificates:
  www.scc.kit.edu/en/services/4619.php
- SCC VPN:
  www.scc.kit.edu/en/services/vpn.php

- SCC Software Shop:
  www.scc.kit.edu/en/services/softwarelicenses.php
- bwSync&Share (Online Data Storage):
  bwsyncandshare.kit.edu

Studying

- Student Portal:
  campus.studium.kit.edu/english/index.php
- Mathemtics Faculty:
  www.math.kit.edu/en
- Computer Science Faculty:
  www.informatik.kit.edu/english/index.php
- ILIAS (Lecture Material):
  ilias.studium.kit.edu
- Email:
  owa.kit.edu
- Email Forwarding:
  my.scc.kit.edu/english/shib/e-mail-forwarding.php
- Students Office:
  www.sle.kit.edu/english/imstudium/index.php
- Prospectus:
  campus.studium.kit.edu/english/events/catalog.php
- Module Handbook Maths:
  www.math.kit.edu/lehre/seite/modulhandb/en
- Module Handbook Computer Science:
  www.informatik.kit.edu/english/formulare.php
- Campus-Plus (Tutorial / Seminar Sign-Up):
  plus.campus.kit.edu
- Wiwi-Porta (Tutorial / Seminar Sign-Up):
  portal.wiwi.kit.edu

Karlsruhe

- Karlsruhe Homepage:
  www.karlsruhe.de
- KA Lightshow:
  www.schlosslichtspiele.info
- KA Sightseeing:
  www.karlsruhe-erleben.de/en
- KA City Offices:
  www.karlsruhe.de/stadt-rathaus/service-buergerinformation/buergerdienste
- KA Ausländerbehörde (Immigration Office):
  web1.karlsruhe.de/service/Buergerdienste/organisation.php?id=6028411

Transportation

- KVV (Transport):
  www.kvv.de/en/index.html
- Stadtmobil (Car Rental):
  karlsruhe.stadtmobil.de/privatkunden

Internationals and Going abroad

- INTL:
  www.intl.kit.edu/ostudent/
- Erasmus Mathematics:
  www.math.kit.edu/lehre/seite/erasmus/en
- Erasmus Computer Science:
  www.informatik.kit.edu/english/erasmus.php
- Double Degree Programme:
  www.informatik.kit.edu/english/doppelmaster.php
- Direct Cooperations:
  www.intl.kit.edu/ostudies/6608.php
- Baden-Württemberg Programme (Overseas):
  www.intl.kit.edu/ostudent/3614.php
- DAAD:
  www.daad.de/en

Accomodiation search

- Studierendenwerk (Student Services: Residence, Flat Search):
  www.sw-ka.de/en/wohnen
- Town Wiki:
  ka.stadtwiki.net/Studentenwohnung

Other

- Deutschlandstipendium (Scholarship):
  www.deutschlandstipendium.de/de/english-1700.html
- Z10 (Students Pub):
  z10.info
- ZSB (student advisory services):
  www.sle.kit.edu/english/wirueberuns/zsb.php
- ACCESS (Digital Accessibility and Assistive Technology):
  https://www.access.kit.edu/english/index.php
- Centre for studying with special needs:
  www.studiumundbehinderung.kit.edu/english/index.php
- Family Portal:
  www.familienportal.kit.edu/english/index.php
- Pregnancy and Studying:
  www.sle.kit.edu/english/imstudium/mutterschutz.php
- Nightline:
  nightline-karlsruhe.de
- PBS:
  www.sw-ka.de/en/beratung/psychologisch

Overview of the Study Programme structure

	Main Subject 1 (24 ECTS)	Main Subject 2 (16 ECTS)	additional maths courses (14-22 ECTS)	Supplementary Subject (16-24 ECTS)	Seminars & SQ (12 ECTS)
1	analysis algebra / geometry numerical analysis stochastics / statistics		Additional mathematical modules from any of the four subjects	Another mathematical subject or Computer Science, Physics, Economics, Mechanical Engineering, Electrical Engineering	Two Seminars (6 ECTS) Key Qualifications (6 ECTS)
2					
3					
4	Master's thesis (30 ECTS)				

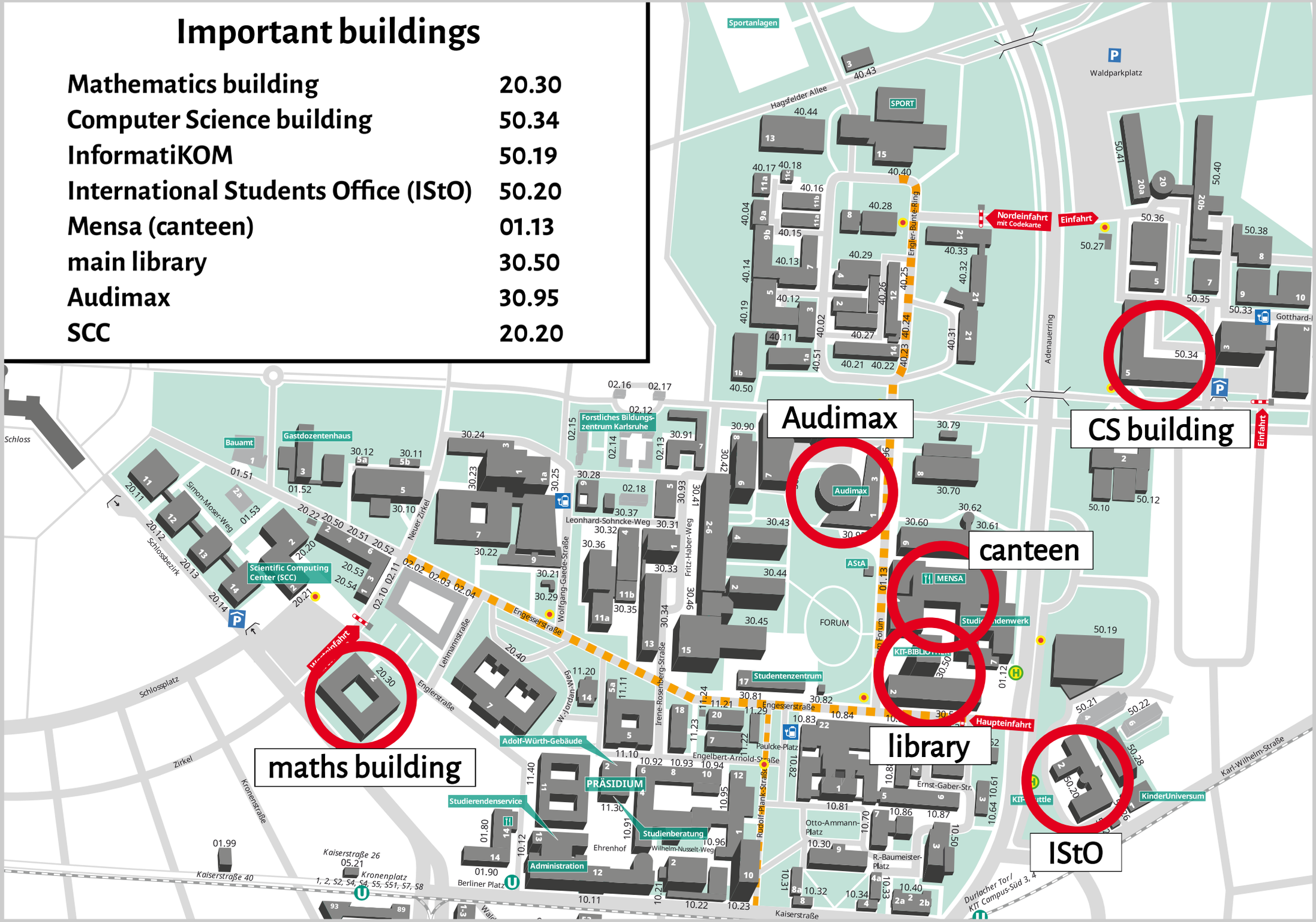
Structure of the studies (Master in Mathematics)

	Area of Specialization 1 (min 15 ECTS)	Area of Specialization 2 (min 15 ECTS)	Elective Studies (6-49 ECTS)	Minor Studies (9-18 ECTS)	Key Qualificationa (2-6 ECTS)
1	4 "Stammmodule"				
2	Seminars and practical courses			Electrical Engineering, Mathematics, Economy, Law	HoC, FORUM, language centre, …
3	elective module of free choice				
4	Master's thesis (30 ECTS)				

Structure of the studies (Master in Computer Science)

Important buildings

Mathematics building	20.30
Computer Science building	50.34
InformatiKOM	50.19
International Students Office (IStO)	50.20
Mensa (canteen)	01.13
main library	30.50
Audimax	30.95
SCC	20.20



With this HANDBOOK the Fachschaft Mathematics and Computer Science wants to give you a short introduction to the international master programmes at KIT including some general studying information

For further questions feel free to contact us at any time!

We wish you all the best for your studies!

Fachschaft Mathematik Informatik
Karlsruhe Institute of Technology (KIT)

www.fsmi.org